



Pacific Islands

- (1) Islands and Pacific waters discussed in this chapter are other than those of the Hawai'ian Archipelago. See chapter 14, Hawaii, for the latter.

Chart 83116

National Wildlife Refuges, American Samoa

- (2) The National Wildlife Refuges of Rose Atoll (American Samoa), Howland Island, Baker Island, Jarvis Island, and Palmyra Atoll are administered by the U.S. Fish and Wildlife Service, Department of the Interior. The refuge boundaries extend outward to the 3-mile limit, except Palmyra Atoll with an outward boundary of 12 miles. Entry into the refuge without a permit is prohibited, except in an emergency. An entry permit is obtained from Refuge Manager, Hawai'ian/Pacific Islands National Wildlife Refuge Complex (see Appendix A, under Department of Interior (indexed as such), for address).

Chart 83484

- (3) The **Samoa Islands** (Navigator Islands) (13°25'S. to 14°30'S.; 168°00'W. to 173°00'W.) consists of two groups of islands, which are commonly referred to as **American Samoa** and **Western Samoa**. The islands comprising American Samoa are **Tutuila Island**, **Aunuu Island**, **Ofu Island**, **Olosega Island**, **Ta'u Island**, and **Rose Atoll**. Western Samoa comprises the islands of **Upolu Island** and **Savai'i Island**.
- (4) The Samoa Islands have been populated for 3,000 years, but known to the western world for little more than two centuries. American Samoa, the only U.S. territory S of the equator, consists of five rugged, highly eroded volcanic islands, and two coral atolls. The land area of the territory is 76 square miles. The islands have population of approximately 60,000, with most people living on the main island of Tutuila. Tuna fishing and canning are the major industries.

COLREGS Demarcation Lines

- (5) The lines established for U.S. Pacific Island Possessions are described in 80.1495, chapter 2.

Weather, Samoa Islands

- (6) The prevailing winds, or so-called trade winds, come from a direction more nearly E, blowing between ESE and NNE. They are fairly constant through the dry season, but during the wet season they are fitful, and are frequently broken by periods of calm. The islands lie within the typhoon area of the W Pacific. Typhoons occur from January to March, and occasionally up to the middle of April. The year divides itself distinctly, but not sharply into a dry season (May to November) and a wet season (November to April.) The wettest month, January, has a range of 5 to 65 inches of precipitation. The annual rainfall has also varied this much. The climate varies little from year to year, because of the great area of water surrounding the group. December is the hottest month, with an average excess of only about 2° over the mean temperature for July, the coldest month.

Caution

- (7) Caution should be exercised in the vicinity of American Samoa, as several Fish Aggregating Devices have been moored at off-lying, deep-water locations around Tutuila, and other positions around the group. The devices may drift off position, and/or concentrations of fishing vessels may be found in their vicinity. The devices are comprised of aluminum catamaran floats painted orange and white. Each device carries a white daymark, fitted with the letter designation of the device, and a flashing white light. The devices offer good radar returns.

- (8) **Rose Atoll** (14°33'S., 168°09'W.), the farthest E of the Samoa Islands, is nearly square in shape; its sides are about 1.5 miles in length. Sand Island, inside the reef on the N extremity, is merely a sand spot. A large clump of trees, 65 feet high, stands on Rose Atoll. There is a boat channel into the lagoon, close W of the N extremity of the reef. Rose Atoll is a U.S. National Wildlife Refuge. (See National Wildlife Refuges, this chapter.)

Tides and currents

- (9) Tidal currents off Rose Atoll are reported to set NE and SW, with the SW or ebb current being the stronger.

- (10) The **Manua Islands** (14°13'S., 169°33'W.) consists of three islands, Ofu, Olosega, and Ta'u, which extend over an area of about 17 miles in an ESE-WNW direction. The islands are about 60 miles E of Tutuila. Ofu and Olosega are joined by a bridge. These islands are sparsely populated. The villages on the islands have only a few hundred people. There is a national park on Ofu and Ta'u.
- (11) **Ta'u Island** (14°15'S., 169°28'W.) is the farthest of the three islands which comprise the Manua Islands. The island is about 5.8 miles long E-W, is dome-shaped, and rises to a height of 3,170 feet. It is covered with vegetation. **Maafee Islet** is located close offshore, about 0.3 mile S of the W extremity of the island.
- (12) **Ta'u Harbor** (14°14.5'S., 169°30.6'W.), on the W shore, should only be entered by flat bottom boats; caution is advised. An entrance channel, marked by a 045° unlighted range, leads NE to a turning basin in the harbor. In March 2005, the controlling depth was 9 feet in the entrance channel, thence depths of 9 to 13 feet were available in the basin (except for lesser depths to 6 feet in the N corner.) The dock is poorly maintained and should be avoided. Permission to enter the harbor along with directions must be obtained from the harbormaster in Pago Pago Harbor.
- (13) **Faleasao Harbor** (14°13.02'S., 169°30.10'W.) is located at the NW point of Ta'u Island. Severe storms have damaged the jetty and mariners are advised to avoid the jetty while transiting the channel. Numerous coral heads and a shallow bottom present a danger to navigation. In March 2005, the controlling depth was 10 feet in the entrance channel (except for lesser depths to 7 feet along the edges), thence the harbor basin had depths of 9 to 10 feet with lesser depths in the NW corner. The entrance is marked by a 200.5° unlighted range. Permission to enter the harbor along with directions must be obtained from the harbor-master in Pago Pago Harbor.

Anchorage

- (14) **Faleasau (Faleasao)**, on the NW side of the island, affords sheltered anchorage, in 14.5 fathoms, during the trade winds, but a vessel should be prepared to weigh anchor with any change. Anchorage may be obtained, in 13 fathoms, coral, 0.4 mile W of **Fitiuta Point**, the NE extremity of the island.

Caution

- (15) An area with a least depth of 22 fathoms, is about 1.3 miles W from the NW extremity of Ta'u Island. This area has experienced submarine volcanic action.

Tides and currents

- (16) The tidal currents at the Faleasau anchorage flow SW on the ebb at 1 to 2 knots, and the flood flows NW at 1 to 2 knots.
- (17) **Olosega Island** (14°11'S., 169°37'W.), 6 miles NW of Ta'u Island, rises nearly perpendicular on its W side to a height of 2,095 feet. The coral reef surrounding the island consists of two regular shelves, one beyond the other. There is fair anchorage, except during the trade winds, in 18 fathoms, coral, S of the W extremity of Olosega Island, and in 14.5 fathoms, sand, NE of the W extremity of the island.
- (18) **Ofu Island** (14°11'S., 169°39'W.) is separated from Olosega Island by Asaga Strait, which is about 0.2 mile wide. Ofu Island is nearly 3 miles long in an E-W direction, and about 1.5 miles at its widest point. The island rises to 1,621 feet on its SE part. Two islets lie off the W side of the island. The coastal reef extends about 0.2 mile from Ofu Island to these islets. Lights are on the NW end of the island.
- (19) **Ofu Harbor** (14°09.8'S., 169°40.9'W.) is on the NW point of Ofu Island. A dredged entrance channel leads E to a turning basin inside the harbor. In March 2005, the controlling depth was 11 feet in the entrance channel to the basin, thence depths of 11 to 16 feet were available in the basin with lesser depths in the NW and SE corners. Storms have damaged the seawalls and mariners are advised to stay clear. Offloading and loading of cargo is not advised during high tide. Permission to enter the harbor along with directions must be obtained from the harbormaster in Pago Pago Harbor.
- (20) **Tutuila Island** (14°19'S., 170°42'W.) is about 17 miles long in an ENE-WSW direction, 5 miles wide, and rises to a height of 2,142 feet. A wooded mountain ridge extends nearly the entire length of the island and is extremely rugged, especially in the E. The N coast is bold and precipitous. The 100-fathom curve lies from 0.1 to 2.3 miles off the S coast, about 4.3 miles off the W extremity, and from 1.3 to 2.5 miles off the N coast. There are several shoal areas, especially off the S coast, which are best seen on the chart. The S coast of the island extends from **Cape Matatula**, the E extremity of the island, in a WSW direction about 14 miles to **Steps Point**, the S extremity, and then about 5.8 miles NW to **Cape Taputapu**, the W extremity. From **Cape Matatula** to **Matuli Point**, 1.5 miles S, the coast is fronted by a reef which extends about 0.1 mile offshore.
- (21) **Auasi Harbor**, about 0.5 mile WSW of Matuli Point, is protected by a jetty on the SW side and a breakwater to the NE. An entrance channel leads NW, between the jetty and breakwater, into the harbor to a turning basin. In April 2005, the controlling depths were 9 feet in the left half and 3 feet in the right half of the entrance

channel, thence depths of 5 to 8 feet were available in the basin.

Tides and currents

- (22) Currents near the coast set SSW, particularly with NE winds; velocities of 4 knots have been observed. Between Tutuila Island and Upolo Island (Western Samoa), a NW current with a velocity of less than 0.5 knot has been found to exist. A current setting SW from Cape Taputapu is said to produce overfalls.

- (23) **Aunuu Island** (14°17'S., 170°33'W.) is 0.7 mile SSE of Matuli Point. The island has two peaks, and there is a village at its W end. Lights are on the NE side and off the NW corner.

- (24) **Aunuu Harbor** is located on the west side of Aunuu Island. Aunuu Harbor is a feeder port for the island. Small boats from **Auasi Harbor** on Tutuila Island frequently transit between the islands. Mariners should be aware that the light off the NW corner of the island, near the harbor, marks the entrance and is on the S jetty, not the N jetty. Permission to enter the harbor along with directions must be obtained from the harbormaster in Pago Pago Harbor.

- (25) A dredged entrance channel leads E between a revetted mole on the N and a breakwater on the S to a mooring basin. In April 2005, the controlling depth was 9 feet in the entrance channel (except for lesser depths to 4 feet in the NE corner), thence depths of 7 to 8 feet were in the basin.

Caution

- (26) A cable area extends across the channel between Aunuu and Tutuila Islands and is best seen on the chart; vessels should avoid anchoring in the vicinity. **Nafanua Bank**, with a least charted depth of 3½ fathoms, extends 1.5 miles in a SW direction from Aunuu Island. A rock, covered 1¾ fathom, is about 0.4 mile SSE of **Cape Fogausa**. A rock, covered 3 fathoms, is about 1.2 miles SW of Cape Fogausa between **Fagaitua Bay** and **Narragansett Passage**. The chart should be consulted for other depths.

- (27) **Breakers Point** (14°17.4'S., 170°39.8'W.), 3.5 miles WSW of Cape Fogausa, is the E entrance point to Pago Pago Harbor and is marked by a light. In 1989, discolored water was reported in the S approach to the harbor in about 14°22.2'S., 170°40.7'W. **Taema Bank**, with a least depth of 4 fathoms, lies about 1.6 miles SSE of the entrance to Pago Pago Harbor. The bank is about 2.3 miles long in an ENE-WSW direction and is marked on the W end by a lighted buoy. Narragansett Passage is between Taema Bank and Nafanua Bank to the E. There are several banks in the vicinity of the passage whose

positions may best be seen on the chart. The passage is not recommended due to the age of survey.

- (28) **Pago Pago Harbor** (14°17'S., 170°40'W.), a natural harbor located on the S shore of Tutuila Island, is entered between Breakers Point and **Niulua Point**. **Pago Pago**, on the NW side of the harbor is the largest village on the island and is the capital of American Samoa; it is the only port of entry for American Samoa. The village of **Utulei** is close SE of the government administration buildings, and the village of **Fagatogo** is close W of the same buildings.

Prominent Features

- (29) Easily identified landmarks include Aunuu Island; Steps Point, the S extremity of the island marked by a light; the sharp peak of **Matafao**, 2,142 feet high, 1.3 miles S of Pago Pago; the flat, dome shape of **North Pioa Mountain**, 1,718 feet high, on the E side of the harbor; and **Fatu Rock**, 102 feet high, 0.2 mile S of Niulua Point. **Tauga Rock**, about 1 mile E of Breakers Point, is 89 feet high and prominent.

Routes

- (30) Vessels approaching from the E should pass about 2 miles E and 1.5 miles SE of Aunuu Island, thence a course of 256° should be steered until **Breakers Point Light** (14°17'36"S., 170°39'48"W.) bears about 025°, thence alter course to the N to pass W of Taema Bank. When clear of the bank, steer a NE course to intersect the entrance range, thence steer 342° and enter the harbor the range. This range line passes E of **Whale Rock** and W of **Toasa Rock**. Vessels and deep-draft vessels approaching from the W or S should keep outside the 100-fathom line until reaching 14°21'S., 170°41.5'W., thence steer 025° to clear the W end of Taema Bank, then proceed as directed above. Mariners should stay well clear of Taema Bank. Locals have noted breakers over Taema Bank during rough weather.

Anchorage

- (31) There is good anchorage in the inner harbor, in 6 to 25 fathoms, mud and sand. The best anchorage for large vessels is at midchannel off the Main Dock. Vessels of 1,000 gross tons or more should not anchor in less than 15¾ fathoms, as the harbor becomes narrow and there is no room to swing.

Dangers

- (32) The shores of the harbor are fringed by reefs, which on the W and E sides of the entrance extend up to 0.3 mile offshore. In most parts the reefs are steep-to and their edges are marked by surf. The depths in the harbor are from 17 to 37 fathoms. A 10-fathom spot is outside the 20-fathom line, about 0.2 mile of Breakers

Point. A dangerous submerged wreck is about 0.1 mile E of the spot. **Whale Rock**, covered 2 fathoms and marked by a lighted buoy on the E side and Toasa Rock covered 2 feet and marked by a buoy on the SW side, are the two principal dangers in the harbor.

Tides

- (33) The mean tidal range is 2.3 feet, while the spring range is 3 feet.

Pilotage

- (34) Pilotage is not compulsory, but is advisable; a pilot is available day or night. Pilotage fees are charged whether or not a pilot is used. It is recommended that large vessels request a pilot if docking in inclement weather. A radio request for a pilot should be made 24 hours prior to the ETA. The pilot prefers to embark close to the dock, but in good weather will embark off Fatu Rock. Entrance at night is not encouraged; however, if previous arrangements are made and weather permits, a pilot will embark during hours of darkness. Port officials board incoming ships alongside the dock.

Harbormaster

- (35) Pago Pago Control and the harbormaster may be contacted on VHF-FM channel 16. Pago Pago Harbor Control also monitors 2182 kHz. Required notifications to the Officer in Charge, Marine Inspection and/or the Captain of the Port, Honolulu, may be made in American Samoa to:
- (36) U.S. Coast Guard Liaison Office, American Samoa
- (37) P.O. Box 249
- (38) Pago Pago, American Samoa

Wharves

- (39) Station Wharf (Main Wharf), on the S side of the inner harbor, has depths of 5¼ to 6 fathoms alongside, however, in 1987, a vessel reported a least depth of 5 fathoms alongside. A deep draft container wharf, 787 feet long, is situated between Station Wharf and the oil dock. The oil dock has depths of 5¼ fathoms alongside. In 1992, Station Wharf and the oil dock were reported to be in poor condition. The customs pier has a depth of 1½ fathoms at the SW end and 3¾ fathoms at the NE end. The facilities on the N shore of the inner harbor are reserved for the fishing fleet serving the canneries.

- (40) From Pago Pago Harbor, the shore trends SW 6.8 miles to **Steps Point** (14°22.4'S., 170°45.6'W.) Midway along this stretch of shore, near the airport, a reef extends about 0.3 mile offshore; the sea breaks continuously on this reef.

- (41) The area W of Steps Point, including **Fagatele Bay**, was designated **Fagatele Bay National Marine Sanctuary**

in 1986. Within the sanctuary lies a Paleo-tropical coral reef with close to 200 species of coral and several hundred species of fish. Due to the “no disturbance of the bottom” and “no take of invertebrates” prohibitions throughout the sanctuary, anchoring is discouraged. No discharges are permitted within the sanctuary boundary; boaters are asked to restrict any discharges near the mouth of the bay. Scuba divers should display a “diver down” flag when in the water. (See **15 CFR 922.1** through **922.50** and **Subpart J**, chapter 2, for limits and regulations.)

- (42) The shore from Steps Point to **Papualoa Point**, about 2 miles NW, is formed partly by perpendicular rocks and partly by blocks of lava, which extend some distance seaward and upon which the sea breaks. **Leone Bay** is entered between Papualoa Point and **Fagaone Point**, and is open to the SSW. There is anchorage W of the village of **Leone**, in 15 to 20 fathoms, but it is dangerous when winds are from the S or SSW.

- (43) **Cape Taputapu** (14°19'S., 170°51'W.), the W extremity of Tutuila, lies 1.5 miles WNW of Fagaone Point. It is a mass of high, steep rocks, fronted by some rocky islets. Taputapu Island lies on the reef close SW of Cape Taputapu. The following banks, with the indicated least depths, lie in the approach to Cape Taputapu:

- (44) a. 14 fathoms – 3.3 miles SE.
- (45) b. 11 fathoms – 2.3 miles SSE.
- (46) c. 15 fathoms – 3.8 miles SW.
- (47) d. 18 fathoms – 3.5 miles W.

- (48) The N coast of Tutuila is described from E to W. From Cape Matatula to **Pola Island**, 6.5 miles W, the coast is indented by numerous bays. The coast then trends WSW 11 miles to Cape Taputapu. This coast is also indented with bays. **Aoa Bay** (14°15'S., 170°35.4'W.), affords anchorage, in 16 fathoms, midway between the entrance points. **Masefau Bay**, entered W of **Tiapea Point**, 1.5 miles W of Aoa Bay, affords anchorage, in 17 fathoms. The surrounding reefs and **Nuusetoga Island**, off the W entrance point, narrow the anchorage. **Afono Bay**, 1.5 miles W of Nuusetoga Island, is reported to provide good anchorage, in 14 fathoms, coral, except in N winds.

- (49) **Pola Island** (14°14'S., 170°40.2'W.), 1.5 miles NW of Afona Bay, is located off the N extremity of Tutuila Island. **Cockscomb Point**, the N extremity of Pola Island is formed by a ridge of rocks, which are high, indented, and steep. An area with a least depth of 13 fathoms is just over 1 mile ENE of Cockscomb Point and an area with a least depth of 15 fathoms is about 1.5 miles W of the point. **Fagasa Bay** is about 4 miles SW of Cockscomb Point. Anchorage, protected from the trades, can be had in 13 fathoms between the E and W points of the bay. Between Fagasa Bay and **Aoloau Bay**, 3 miles WSW, there are two small bays backed by mountains. Aoloau

Bay affords good anchorage, in 14 fathoms in mid-bay, but vessels should be prepared to leave on short notice when the winds shift to the N. Aoloau Bay is small and surrounded by high mountains. A 12-fathom area is 1.5 miles NNE of Aoloau Bay. Similar depths are charted to a distance of 4.8 miles W of the 12-fathom depth. **Poloa Bay** (14°19'S., 170°50.6'W.), 4 miles SW of Aoloau Bay, affords good anchorage during E winds, in 16 fathoms, midway between the entrance points. Vessels should be prepared to leave on short notice when the wind shifts to the W. In this bay there is a 1 to 4 knot current that runs in a SW direction. Cape Taputapu is located close SW of Poloa Bay.

Chart 83157

- (50) **Palmyra Atoll** (5°53'N., 162°05'W.), about 780 miles SSW of the island of Hawaii, is an atoll which consists of many small islets lying on a barrier reef enclosing three distinct lagoons. The reef surrounding the atoll is 5 miles long, E to W, and 2 miles at its widest part. Shoal water extends 1.8 miles E from the SE end of the reef and the same distance from the NW and SW ends. The islets are low, about 6 feet high, and covered with coconut and other trees reaching heights of 98 feet and visible 12 to 15 miles. Palmyra Atoll is a National Wildlife Refuge (see National Wildlife Refuges, this chapter.)

Prominent features

- (51) A group of four radio towers stand as a good landmark on the SW part of the atoll.

Channels

- (52) A dredged entrance channel leads through the SW side of the atoll to West Lagoon; it is the only entrance to the atoll. In 1966, a depth of 26 feet was reported in the channel. Depths in the lagoon vary from 10 to 174 feet. Reefs and shoals within the lagoon are shown on the chart. A pier along the NE edge of West Lagoon is reported to be in poor condition with depths of 21 to 30 feet alongside.

Anchorage

- (53) The atoll should be approached from the W. Anchorage may be had on the bank between 2 and 2.5 miles from the NW end of the atoll in about 5°53'00"N., 162°08'55"W., sand and coral. It is not advisable to anchor between sunset and sunrise. In 1988, a 2-knot current setting S was observed during a NW fresh at the anchorage.

Caution

- (54) An explosive dumping area is situated with its center about 15 miles WSW of Palmyra Atoll.

Tides/Currents

- (55) Strong and variable currents can be expected in the vicinity of the atoll. Caution is advised if approaching the atoll from the SW as dangerous tide rips have been reported 5 miles SW of the atoll. The tidal rise at Palmyra Atoll is about 2 feet MHHW and 0 feet at MLW.

Weather

- (56) Palmyra Atoll has unfavorable weather and is the only island/atoll in its latitude where fresh W winds occur. A tropical front, a result of the Northeast and Southeast Trades converging, hovers in the vicinity of the atoll. Northeast Trades prevail, with an average velocity of 10 to 12 knots. There are frequent squalls of short duration and occasional winds up to 22 knots; typhoons are infrequent. Rainfall is heavy and humidity high, ranging from 100 to 180 inches annually. Rain occurs almost daily and heavy squalls come up suddenly from the SW, but there are no severe storms.

Chart 83153

- (57) **Kingman Reef** (6°25'N., 162°26'W.) is located about 33 miles NNW of Palmyra Atoll. The reef, a U.S. possession, is a Defensive Sea Area and Airspace Reservation and is closed to the public. The airspace entry control has been suspended but is subject to immediate reinstatement without notice.

- (58) The reef is triangular in shape with its apex to the N and is about 9 miles long E-W and 5 miles N-S. A small islet, 3 feet high, lies on the E side of the reef. The reef dries on its NE, E, and SE edges; the remainder of the atoll is contained within the ridge with depths of 10 to 20 fathoms. Breaks in the reef are on the N and S sides. Outside the ridge the bottom slopes steeply to over 100 fathoms.

- (59) The reef has been reported to be difficult to identify, both visually and by radar. The reef has been sighted at 7 miles.

- (60) Kingman Reef is within the belt traversed by the equatorial countercurrent which in this area sets E at rate of 1.3 to 1.8 knots.

Chart 83116

- (61) **Jarvis Island** (0°22'S., 160°00'W.), an island of sand and coral formation, is located about 460 miles SSE of Palmyra Atoll. The island is 1.8 miles long E-W and about 1 mile wide; it rises to a height of 20 feet. A

narrow fringing reef, which dries in places and has breakers along the S shore, encircles the island. There are two breaks in the reef on the W side. A daybeacon is near the middle of the W shore.

- (62) A shoal with a least depth of $2\frac{1}{2}$ fathoms extends about 0.6 mile from the E side of the island. The depths drop rapidly outside the shoal area. The highest ground lies on the W end of the island. Low shrubs cover most of the island, however, it has been observed without much vegetation.

- (63) Jarvis Island has been reported to lie 1 mile NE (1991), 1.6 miles E (1992), and 1.3 miles ENE (1996) of its charted position.

- (64) Jarvis Island is a U.S. possession and a National Wildlife Refuge. It is under the jurisdiction of the U.S. Fish and Wildlife Service (see National Wildlife Refuges, this chapter.)

- (65) **Baker Island** ($0^{\circ}12'N.$, $176^{\circ}29'W.$) is nearly flat but rises to an elevation of 20 feet at its SW end. At this point there is a steep, sandy beach which extends some distance N; elsewhere, the island is fringed by a coral reef. An extensive shoal with depths of 3 to 7 fathoms extends about 0.8 mile from the island on the N and E sides. The surf breaks heavily on the E side and the SW extremity of the island.

- (66) Baker Island is a National Wildlife Refuge and under the jurisdiction of the U.S. Fish and Wildlife Service (see National Wildlife Refuges, this chapter.)

Anchorage

- (67) There is no sheltered anchorage. Vessels lie off the island and discharge to landing craft. The fringing coral reef surrounding Baker Island makes landing difficult. The S point of the island can be used for landing when winds are from the NE. A daybeacon is near the middle of the W shore. Tangent bearings of the island are unreliable.

Weather

- (68) The W side of the island is leeward of prevailing wind conditions. Winds from the E predominate throughout the year. From December to May, the prevailing winds are sometimes interrupted by W winds and bad weather.

- (69) **Howland Island** ($0^{\circ}48'N.$, $176^{\circ}37'W.$), about 38 miles NNW of Baker Island, is a low, flat island devoid of vegetation other than a few stunted trees. It is ringed by a relatively flat coral reef almost completely exposed at low water extending out to about 0.1 mile, except on the W side where the reef averages about 80 yards in width. Outside this reef is a coral shelf extending about 0.3 to 0.5 mile on the N, E, and S sides, and about 0.1

mile on the W side. The depths on this shelf vary between 2 and 15 fathoms.

- (70) A broad, sandy, and in some places, gravelly beach slopes upward at a slight angle on the W side of the island. On the windward or E side, there is practically no beach and the island rises abruptly from the reef to an average height of 12 feet, with the highest point about 18 feet in the N part. Amelia Earhart Daybeacon is situated near the center of the W side of the island.

- (71) Howland Island is a National Wildlife Refuge and under the jurisdiction of the U.S. Fish and Wildlife Service (see National Wildlife Refuges, this chapter.)

Anchorage

- (72) In 1966, a vessel anchored 0.4 mile from the N end of the island in 30 fathoms, with the E tangent of the island bearing **144°** , the W tangent bearing **185°** , and the daybeacon bearing **167.5°** . In 1967, a vessel anchored about 0.3 mile NNE of the N end of the island in 13 fathoms, with the E tangent of the island bearing **153°** , the W tangent bearing **213°** , and the daybeacon bearing **176°** , distance 1 mile.

Weather

- (73) Winds from the E predominate throughout the year. From December to May, the prevailing winds are sometimes interrupted by W winds and bad weather.

Chart 81664

- (74) **Wake Island** ($19^{\circ}17'N.$, $166^{\circ}37'E.$) lies in the Pacific Ocean on the direct route from Hawaii to Hong Kong. It is a U.S. possession with an area of only 3 square miles, consisting of three islands about 21 feet high. The islands form all but the NW side of an atoll enclosing a shallow lagoon. The higher parts of the islands are covered with fairly heavy growth of scrub brush. The entire island group is surrounded by a shallow reef interspersed with coral pinnacles. There is no natural freshwater.

- (75) Wake Island is administered by the Department of the Interior and activities on the island are managed by the US Army under a US Air Force permit. The restrictions imposed upon the entry into the Wake Island Naval Defensive Sea Area have been suspended, except for the entry of foreign flag vessels and foreign nationals. The restrictions may be re-established without notice at any time.

Prominent Features

- (76) A conspicuous concrete structure with storage tanks in the background is situated near the W end of Wake Island. A prominent tower stands on Peale Island.

An aero light is shown from an abandoned control tower situated 0.6 mile NW of Peacock Point, the SE extremity of Wake Island. It was reported that a ship obtained radar contact with Wake Island from a distance of 35 miles. The complete outline of the island was observed from a distance of 25 miles.

Channels

(77) On the seaward side, between Wake Island and Wilkes Island, there is a channel leading to a boat basin at the W extremity of Wake Island. In 1970, the channel and boat basin had controlling depths of 12 feet.

(78) The boat basin can accommodate three small-craft, which may serve as tugs or cargo lighters. Ships should radio their ETA 48 hours in advance. An unloading wharf is situated on the SW side of the basin and a boat landing is at the head of the basin. Two mooring buoys are just outside the boat basin entrance channel. Cargo is discharged at the moorings. Sea conditions often permit a vessel to lie offshore and discharge dry cargo; this reported to be the safest and best method for large vessels. Oil is discharged through a floating hose which is floated out on barrels and connected to a fuel jetty at the E entrance point of the boat channel.

Anchorage

(79) The depths drop off sharply outside the atoll reef making it unsuitable for anchorage. The lagoon itself is inaccessible. The mooring facility outside the boat basin is available to all vessels having permission to call at Wake Island, but is considered hazardous. The use of an anchor is not recommended when using the mooring buoys. Vessels should not attempt to secure at the mooring buoys in an onshore or S wind. If secured to one buoy when the wind shifts to blow onshore, slip the mooring and leave the area. Any vessels moored to only one buoy must have engines on standby. Vessels should be secured to the mooring buoys with the bow headed ESE. Small-craft usually assist in mooring operations with the best times being at either high water or low water slack.

Tides/Currents

(80) A SSW current of 0.5 to 1 knot has been observed in the vicinity of Wake Island. There have been occasions when the currents are erratic and onshore sets have been observed. Vessels should carefully note the set and the drift of the tidal currents before attempting to moor. The tidal currents in the vicinity of the mooring buoys have been observed to set parallel to the shore at a rate of about 0.8 knot. The tidal range is from 2 to 4 feet.

Weather

(81) Winds from the E and NE prevail throughout the year, with average velocities of 10 to 13 knots. Gales occur on an average of 10 days a year. By reason of its position, the atoll is subject to typhoons and tropical storms; thunderstorms seldom occur.

(82) At Wake Island, the influence of the higher latitude is noticeable and the means vary between a low of 77°F in January and February and a high of 82°F in September. In August the mean maximum reaches 88°F. Extremes above 95°F are rare.

(83) The annual average rainfall is only 37 inches, showing a great decrease in precipitation from that occurring in the lower latitudes. The monthly totals range from a January average of 1 inch in the dry season to 7 inches in August.

Chart 81004

Mariana Islands

(84) Mariana Islands are comprised of the **Northern Marianas** and **Guam**. The Northern Marianas, a self-governing U. S. commonwealth consists of a chain of 16 volcanic islands, which extend in a N and S direction for a distance of about 450 miles. The islands in the group from N to S are Farallon de Pajaros, Maug, Asuncion, Agrihan, Pagan, Alamagan, Guguan, Sarigan, Anatahan, Farallon de Medinilla, Saipan, Tinian, Aguijan, and Rota. Except for Maug, which is a cluster of three tiny islands, all are single islands which rise precipitously as mountain peaks of rocky, volcanic material and are conspicuous from the offing. They are a good radar target from a distance of 14 miles, but are reported to give a poor return from a distance of 28 miles. Their total area is approximately 184 square miles. The three principal islands, Saipan (47 square miles), Tinian (39 square miles) and Rota (32 square miles) form two-thirds of the land area of the group.

Weather, Pacific Islands

(85) The islands of the Marianas Archipelago have similar weather conditions. Under ordinary circumstances, the wind and seas in the vicinity of Guam are easterly due to the Northeast Trades. Westerly winds are at times experienced during the summer months as Guam is barely within the limits of the Southwest Monsoon. These winds are light as a rule. In the vicinity of Guam, northeasterly and east-northeasterly winds prevail for 6 months of the year. These winds blow from the northeast to east 65% of the time between December and May, and are strongest during these months. Between June and November, the surface winds are quite

variable; calms are rare. In the southerly islands, the winds show a slight southerly trend as early as May.

(86) In the vicinity of the islands of Saipan and Tinian, the steadiest winds occur when the winter monsoon and the NE Trades reinforce each other. Between November and April, NE and easterly winds prevail 70% of the time at rates of 10 to 12 knots. During the summer monsoon (May to October) easterly winds predominate, but southerly to westerly winds also occur. Wind velocities are about 10 to 11 knots from May to July, and 8 knots from August to October. Land mass effect modifies the maritime diurnal variations so that the surface winds are strongest at 0300 and weakest at 1400.

(87) In the vicinity of Pagan Island, the winds are steadiest during the Northeast Monsoon (November through March). They blow mostly from the NE at an average rate of 15 knots. From April through June, the monsoon weakens and the prevailing winds become more easterly. During the wet season (June through November), easterly winds continue to predominate, but with considerable percentages from southerly to westerly directions. The winds are mostly light; the only strong winds occurring with typhoons.

(88) Precipitation increases decidedly during the summer months, especially in the southern islands. The wet season (July through October) has a mean monthly average of 10 inches (254 mm) or more. The major rainfall consists of heavy showers. As a rule, the rainfall diminishes as the latitude increases.

(89) The rainy season at Guam is from the first of July until the early part of November, with a monthly average of 11 to 15 inches (279 to 381 mm). January through June is the driest period, with an average monthly fall of 3.9 to 6.5 inches (99 to 165 mm). March is the driest month with an average precipitation amount of 3.9 inches (99 mm). The mean average rainfall is about 101 inches annually (2565 mm) but has ranged from 165 inches (4191 mm) in 1976 to 67 inches (1702 mm) in 1973. An average of 30 thunderstorms each year effect the island of Guam. The most active month is August.

(90) The rainy season at the islands of Saipan and Tinian is from July to November; the dry season lasts from December through June. During the rainy season, with the doldrums belt lying almost directly over these islands, there are increased showers and numerous thunderstorms and squalls. The dry season is characterized by fair weather, interrupted by fronts associated with northerly low pressure centers and some showers. Saipan Island has an average rainfall of 86 inches (2184 mm) per year with a monthly average of 13 inches (330 mm). During the rainy season (July through October) it averages 13 inches (330 mm) per month.

Throughout the rest of the year, the average is about 4 inches (102 mm) per month. April is the driest month with an average of about 2¾ inches (70 mm).

(91) Typhoons frequently form south and east of the Mariana Archipelago and routinely pass in the vicinity of these islands. They are apt to occur more often during the summer months and are accompanied by high winds and torrential rains. They seldom occur during the winter months.

(92) Tropical disturbances often occur in the vicinity of Guam. Since 1842, at least 51 tropical cyclones have come within 25 miles (46 km) of Guam and another 49 have come within 50 miles (93 km) of the island. Since 1980, nine tropical cyclones have come within 25 miles (46 km) of the island and another 11 within 50 miles (93 km) of the island. As recently as August 1992, before attaining super typhoon status, Typhoon Omar raked the island with winds of 105 knots and gusts in excess of 140 knots. Omar was the most damaging typhoon to strike Guam since Typhoon Pamela in 1976. Omar caused an estimated \$457 million of damage and destroyed or severely damaged over 2,158 homes.

(93) Tropical disturbances occur between August and January in the vicinity of the islands of Saipan and Tinian. Since 1842, at least 51 tropical cyclones have come within 25 miles (46 km) of Saipan and another 53 have come within 50 miles (93 km) of the island. Since 1980, 15 tropical cyclones have come within 25 miles (46 km) of the island while an additional 15 have come within 50 miles (93 km) of the island. As recently as December 3, 1986, Super Typhoon Kim passed only 18 miles (33 km) north of Saipan and raked the island with 135 knot winds and record rainfall.

(94) Tropical disturbances usually pass well to the south of Pagan Island, but several have been experienced. August, September and October are the most likely months. January through April is the only period believed to be entirely free of such storms. Probably not more than one a year pass close enough to affect Pagan Island.

(95) Gales, other than those of tropical origination, seldom occur in the vicinity of the islands of Tinian and Saipan. Winds reach gale force in the vicinity of Pagan Island from 2 to 4% of the time.

(96) Thunderstorms occur frequently from July to the early part of November. December through May are the months that are relatively free from thunderstorms.

(97) In Guam, the mean temperature is 79°F (26.1°C), the mean maximum is 86°F (30°C), and the mean minimum is 72°F (22.2°C). The temperatures for the rest of the Mariana Islands are quite uniform throughout the year. January and February are the coolest months. The nights are cooler in the northern islands. Temperatures above 85°F (29.4°C) normally occur from 25 to 28

days a month between April and August. The daily minimums seldom fall below 74°F (23.3°C) during the summer months. The yearly RANGE of temperatures is 3°F (2°C) in the south and 7°F (4°C) in the north. The daily RAnge is about 10°F (6°C). The extreme maximum temperature on Guam is 95°F (35°C) recorded in September 1957 and the extreme minimum is 54°F (12.8°C) recorded in March 1965.

(98) In Saipan, the mean temperature is 82°F (27.8°C), the mean maximum is 86° (30°C), and the mean minimum is 77°F (25°C). Extremes include a maximum of 104°F (40°C) recorded in May 1977 and September 1987 and an extreme minimum of 60°F (15.6°C) recorded in March 1975.

(99) Humidity is high throughout the year, but there is somewhat less humidity from December through May. The yearly average is about 76%. The January average is 68% and the June average is 84%.

(100) Fog and mist are rarely reported in the Guam, Saipan- Tinian areas. Visibility of less than ¼ miles (2 km) can be expected on less than one day per month. The occurrence of fog averages only one to two days each year.

(101) The yearly average cloud cover is about 7/10 (70%). The maximum coverage of 8/10 to 9/10 occurs during the summer months (July to October). Cloudiness is higher over the islands than over the adjacent seas. Clouds are more frequent during the daytime.

Tides and currents

(102) See Sailing Directions (Planning Guide) for the South Pacific Ocean (Pub. 122), for general information on tides, currents, and tidal currents in the region.

(103) Currents in the vicinity of the Mariana Islands are for the most part westerly. They are strongest near to and south of Saipan Island, and gradually become weaker north of that island. In June, the Equatorial Drift Current was reported to be strongest during that season in the parallel of 13° N. and to run to the northwest at a maximum rate of 1 knot. In October, a westerly current of 1 knot to 1½ knots was reported to have been experienced up to 20 miles east of Guguan Island, but little or no current was experienced north of that island.

(104) Variable currents are sometimes encountered near the islands. These are caused by the physical makeup of the island and by the additional force of the tidal currents.

(105) An almost constant southwesterly set has been reported along the northwest coast of Guam during the Northeast Trades. This current has been felt up to 10 miles offshore.

(106) In the vicinity of the Mariana Islands, the flood current usually sets westerly and ebb easterly; the tidal

currents turn at the approximate times of high and low water. These currents are usually weak, except in narrow passages, and their directions and rates are sometimes variable. The tidal currents are usually confused and irregular off the east sides of these islands, due to the configuration of the land.

Charts 81048, 81054

(107) **Guam** (13°25'N., 144°44'E.), a U.S. territory since 1898, is not included in the Commonwealth of the Northern Marianas. The largest and southernmost island of the Marianas Archipelago, Guam is about 30 miles long and varies from 4 to 8 miles in width. The N end of the island is a plateau of rolling hills set on vertical cliffs rising to about 490 feet above sea level. The S end of the island consists of high volcanic hills. The plateau is covered with a thick growth of jungle; the volcanic hills support mainly sword grass. The highest hills are found in the central and S parts of the island.

(108) **Apra Harbor**, situated midway along the W coast of Guam, is the main berthing facility on the island, consisting of a commercial harbor, a naval complex, and a repair facility. The harbor is comprised of two main areas; **Apra Inner Harbor** and Apra Outer Harbor. **Apra Outer Harbor** is the principal commercial port for the island. Apra Inner Harbor houses the U.S. Naval facility and a commercial ship repair facility. **Glass Breakwater** forms the N and NW sides of Apra Outer Harbor and acts as a barrier against most ocean swells from the N and W. The seaward end of the breakwater is marked by a light. The harbor is extensive and safe, except during typhoon season. During this time, vessels should be prepared to get underway at short notice.

Prominent features

(109) **Orote Point**, the W end of **Orote Peninsula**, is a sharp bluff about 210 feet high. **Orote Island** lies close off the N side of the point. **Orote Point Light** (13°26'47"N., 144°37'11"E.), 226 feet above the water is shown from a concrete tower on Orote Point. The light may be obscured by land features on a southern approach. A 200-foot radio tower is SW of Orote Point Light in about 13°26'45"N., 144°37'10"E.

COLREGS Demarcation Lines

(110) The lines established for Apra Harbor are described in 80.1490, chapter 2.

Anchorage

(111) There are **naval, explosive, and general anchorages** that have been designated within Apra Outer Harbor.

(See **33 CFR 110.1 and 110.238**, chapter 2, for limits and regulations.)

- (112) There are also **special anchorage areas** in Apra Outer Harbor. (See **33 CFR 110.1 and 110.129a**, chapter 2, for limits and regulations.)

Channels

- (113) The approaches to the harbor are free and deep, as is the channel between the breakwaters. The entrance to Apra Outer Harbor is marked by lights, lighted buoys, and a 083° lighted range. The entrance to Apra Inner Harbor is marked by lighted buoys and a 141° lighted range and a 176° lighted range.

Regulated navigation areas

- (114) **Regulated navigation areas** have been established in the approach to and in Apra Outer Harbor. (See **33 CFR 165.1402 and 165.1405**, chapter 2, for limits and regulations.)
- (115) **Safety zones** and **security zones** have been established in Apra Outer Harbor. (See **33 CFR 165.1401 and 165.1404**, chapter 2, for limits and regulations.)
- (116) Apra Inner Harbor and an area just W of the entrance to the Inner Harbor are included in a **restricted area**. (See **33 CFR 334.1 through 334.6 and 334.1430**, chapter 2, for limits and regulations.)

Caution

- (117) The restricted area of a **Firing Danger Zone** extends offshore about 1 mile S of Orote Point and off the SW coast of the island. (See **33 CFR 334.1420**, chapter 2, for limits and regulations.) An acoustic range facility is S of the restricted area and a submarine operating area surrounds most of the island.

Tides

- (118) The mean tidal range at Apra Harbor is 1.6 feet, while the spring range is 2.3 feet.

Currents

- (119) On the approach to Orote Point, the SW current associated with the Northeast Trades tends to curve to the S and SE. The rate of the current is greatly affected by the force of the wind. During the typhoon season, the outgoing current from the harbor augments the SW current and reduces any NE current that may occur. Strong rips may be observed under these conditions. The prevalent set of the current at the harbor entrance is usually S or SW regardless of the tidal currents, but a set to the N or NE may be experienced, especially during the summer months. The flood current in the harbor entrance sets N to NNE at a maximum rate of 1.5 knots. The ebb current sometimes attains a maximum rate of 3 knots. Slack water occurs 30 minutes before

low water and 45 minutes before high water. Heavy W swells sometimes make the entrance of Apra Outer Harbor dangerous. This condition occurs when a typhoon builds up in the area, progresses to the NW, and then curves NE. Beacons and buoys are sometimes destroyed or carried away at such times. The currents and tidal currents within the harbor are weak and variable.

Pilotage

- (120) Pilotage is compulsory for vessels over 500 gross tons and all vessels entering the port for the first time and after daylight hours. Pilot services are available on a 24-hour basis for Apra Harbor. Pilots are required to board inbound vessels and leave outbound vessels at Alpha Hotel Pilot Station (13°26'52"N., 144°35'16"E.), about 2 miles W of Orote Point, to insure that the vessel is properly aligned on the entrance range; the station is unmarked.

Towage

- (121) Tugs to 3,200 hp are available in Apra Harbor.

Quarantine, customs, immigration, and agricultural quarantine

- (122) Apra Harbor is a customs and U.S. immigration port of entry. U.S. immigration regulations apply and are enforced by U.S. Customs and Border Protection; telephone 671-472-7138, fax 671-472-7139. U.S. Customs regulations are enforced by:
- (123) Department of Customs, Government of Guam
- (124) Customs and Quarantine Agency
- (125) PO Box 21828
- (126) GMF, Barrigada, Guam 96921
- (127) telephone 671-475-6202

Coast Guard

- (128) The Coast Guard Communications Center is a full-service communications station. The center is monitored 24 hours and can be contacted on VHF-FM channel 16 or 9, call sign NRV. A Marine Safety Office is located on the U.S. Naval base and can also be contacted on VHF-FM channel 16 or 9 (24 hours); telephone 671-339-2001 during working hours.

Harbor Regulations

- (129) All operations in Apra Outer Harbor are under the jurisdiction of The Port Authority of Guam and The United States Coast Guard. Prior to entry all vessels must establish communications with Guam Port Control Harbormaster's office on VHF-FM channels 12, 13 or 16; call sign WRV-574. The phone number for Guam Port Control Harbormaster's Office is 671-477-8697.
- (130) All operations in Apra Inner Harbor are under the jurisdiction of the U.S. Navy Port Control Harbormaster's

Office with communication on VHF-FM channels 14 and 16. The phone number is 671-339-6141.

- (131) Vessels entering, leaving or shifting berth are required to give a minimum of 24 hours notice to **The Port Authority of Guam Harbor Master and US Coast Guard Captain of the Port**. Failure to give such notice is a basis for denying entry. No vessel shall enter or leave the harbor without radio clearance from the Harbormaster. Vessels must be ISPS/MTSA compliant.
- (132) A tug boat (or tugs) shall be used by all commercial vessels, exceeding 250 feet in overall length entering, leaving, or operating within the harbor, except research vessels and vessels up to 300 feet in overall length equipped with an operational bow thruster. A fishing vessel's use of a skiff boat in lieu of a tug boat is permitted provided there is constant communication between the skiff operator and the vessel Master.
- (133) Speed is limited to no more than 12 knots in Outer Harbor and no more than 5 knots in Inner Harbor, except in emergency situations.

Wharves

- (134) The commercial port, situated on **Cabras Island**, handles general cargo, passengers, and inter-island transshipments. Three 30 to 40-ton gantry cranes, three hoists, and one 150-ton crane are available at the port. The Inner Harbor is under the jurisdiction of the Navy, but certain berths are available through the Port Authority upon special request.

Supplies

- (135) Apra Harbor is the principal supply center for the region. Water is available at most wharves. Bunker fuel is available at Golf Pier, Berths F-1 and F-3 and by tanker truck.

Repairs

- (136) Apra Harbor has a floating dry dock that can handle a maximum LOA of 700 feet. Guam Shipyard, PO Box 13010, Bldg. 20 Comnavmar, Santa Rita, Guam 96915-3010; telephone 671-339-1101 or 671-339-5258.

Chart 81063

- (137) **Rota Island** (14°10'N., 145°12'E.), of volcanic formation, is about 32 miles northeast of Guam. The northeast part consists of a plateau 522 feet (159 meters) high; southwesterly part is a low sandy isthmus. The shore of Rota is generally steep and rocky except at the southwest tip; a narrow coral reef nearly fringes the entire island. Rota rises to 1,611 feet (491 meters) in its west-central part.

Caution

- (138) A naval operating area is off the northeast shore of Rota.

Tidal currents

- (139) The diurnal inequality is considerable. The flood attains a rate of ½ knot. The flood sets southerly, the ebb northerly; turning at about the time of high and low water.

- (140) **Harnom Point (Puntan Taipingot)** (14°07'N., 145°07'E.) is the south end of **Taipingot**, a prominent headland with a distinct 'wedding cake' shape, which forms the southwesterly end of Rota Island.

- (141) **Sasanlagu**, situated on the NW side of the Taipingot Peninsula, affords some shelter during southeasterly winds. **Rota West Harbor**, on the SE side of Sasanlagu and 0.5 mile SW of the village of Rota (Song Song), is the only commercial port serving the Commonwealth of the Northern Mariana Islands. An entrance channel, marked by a **118°** lighted range, leads SE to a turning basin inside the harbor. In September 2005, it was reported that the entrance channel had a depth of 20 feet and the turning basin had a depth of 16.5 feet.

- (142) Pilotage is compulsory for vessels greater than 300 gross tonnage. There are no pilots in Rota but pilotage can be arranged by contacting Saipan Marine Corporation at 670-322-7345/46/51. Arrival at night is not permitted. There is no anchorage inside Rota West Harbor, however, anchorage can be permitted outside the harbor by contacting Rota Port Control on VHF-FM channels 13 or 16. Tugs and barges are not available in Rota.

- (143) Rota West Harbor has two berthing facilities: Berth 1 is 150 feet in length, 16 feet alongside and Berth 2 is 100 feet in length, 16 feet alongside. Forklifts to 3 tons and an 80-ton crane are available at the harbor. Stevedoring services are available by Rota Terminal & Transfer (RT&T), Monday-Saturday, and can be contacted at 670-532-3117 or 670-532-5270. The harbor is owned and operated by the Commonwealth Ports Authority (CPA). Hours of operation are Monday-Saturday 0730 to 1630. Other times may be arranged by contacting the CPA (670-532-9497/89) and other agencies needed to provide port services. Advance notice of at least 24 hours is required to provide adequate services.

- (144) Customs, quarantine, and immigration offices are in Rota West Harbor. Hours of operation are Monday-Saturday 0730 to 1630 for customs and quarantine, Monday-Friday 0730 to 1630 for immigration. Other times may be arranged by calling: customs office 670-532-9484/88, quarantine office 670-532-3415/9494, immigration office 670-532-9436.



- (145) **Sasanhaya** is a bay on the east side of Taipingot and south of the village of Rota. Anchorage can be had in Sasanhaya, however, a swell sets in with winds from any direction except NE. When northeasterly winds are strong, they often blow down from the steep slopes at the inner part of the bay. Anchorage may be found in depths of 16 fathoms (29 meters), about 0.4 mile south of the village of Rota (Song Song). During northeasterly winds, good anchorage may be found on the east side of the bay.

Off-lying Danger

- (146) A bank with a depth of 22 fathoms (40 meters) is about 120 miles, 273° from Harnom Point (Puntan Taipingot).

Charts 81004, 81067

- (147) **Aguijan Island** (14°51'N., 145°33'E.) is about 022°, 42 miles from Rota Island, and it has steep, cliffy and inaccessible shores. Naftan Rock is about ½ mile southwest of the island's southwest end.

Off-lying banks and dangers

- (148) **Esmeralda Bank**, about 17 miles northwest of Aguijan Island, has a least depth of about 33 fathoms (60 meters), and can be recognized by the discoloration

of the water, which has the appearance of sulphur being emitted. A 30 fathom (54 meters) bank, marked by boiling sulphur, is about 20 miles northwest of Aguijan Island. Other banks with greater depths are charted in this vicinity.

- (149) A bank, with a depth of 19 fathoms (34 meters) over it, is about 5 miles southwest of Aguijan Island.

- (150) **Tatsumi Reef**, centered about 2 miles southeast of the southern end of Tinian Island, is on the northeast side of Tinian Channel. A patch with a depth of 13 fathoms (24 meters) over it is 14 miles west of the north end of Tinian Island.

Charts 81067, 81071

- (151) **Tinian Island** (15°00'N., 145°38'E.) is northeast of Aguijan Island and it is separated from it by Tinian Channel. The north end of the island is low and flat.

- (152) Tinian Island is an experimental cattle raising center. The island is extensively cultivated; vegetables and produce are shipped to Guam. Tinian is a transfer point for tuna purse seiners. An inter-island tug and barge reportedly visits the island several times a week. The population was 3,540 (2000).

Prominent features

(153) **Lasso Hill**, 564 feet (172 meters) high, is the summit of the island and lies about 3¼ miles south of the north end of Tinian Island. **Maga Hill**, a mile northwest of Lasso Hill, is joined to the latter by a ridge. The land south of this ridge is sloping and for the most part cultivated. Several radio towers are prominent on the slope W of Maga Hill.

(154) An extensive ridge is located along the east side of the south part of the island, between **Puntan Carolinas** and **Puntan Masalok**. The coast between these points is faced by a sheer cliff. The broad and cultivated land in the central part of the island gives way to narrow and successively lower terraces near the coast. These levels are separated by steep slopes or cliffs. Sandy beaches are found near the town of Tinian and in the bay between Puntan Masalok and Puntan Asiga.

(155) Many charted landmarks were either nonexistent or were overgrown with foliage (1963).

(156) **Tinian Harbor** is the name given to the area lying off the southwestern shore of Tinian Island, fronting the town, and including the swept area best shown on the chart.

(157) The inner harbor area off Tinian is protected from the sea by a breakwater constructed on the reef that fronts the town. The north end of the breakwater was in ruins (2005). Ships drawing 25 feet (7.6 meters) can berth. A buoyed channel, 250 yards wide and dredged to 28 feet (8.5 meters), is entered about ½ mile south of the head of the breakwater. The channel leads northeast and northwest to the docks. The northerly leg of the channel is about 175 yards wide. Depths of 28 feet (8.5 meters) to 31 feet (9.5 meters) were reported east of the east end of the breakwater. A smokestack is about 0.6 mile NNW of the inner harbor in about 14°58'25"N., 145°36'55"E.

Routes

(158) A course of **035°** leads through the first leg of the channel to a position southeast of the outer end of the breakwater, then a course of **336°** leads to the main quay.

Anchorage

(159) Anchorage may be found, in depths of 10 to 20 fathoms (18.3 to 37 meters), sand and coral, good holding ground, off Tinian; however, it is unsafe during the Southwest Monsoon. During westerly winds anchorage may be found in a bay on the northeast side of Tinian Island between Puntan Masalok and Puntan Asiga, in depths of 15 to 25 fathoms (27 to 46 meters); however, this anchorage is reported untenable during strong easterly and northeasterly winds.

(160) **Explosive anchorages** are off the west shore of Tinian Island, off **Puntan Diabloblo** (see **110.239**, chapter 2, for limits and regulations.)

(161) A **security zone** is off the west shore of Tinian Island, between Puntan Diabloblo and the village of Tinian (see 165.1403, chapter 2, for limits and regulations).

Tides and currents

(162) At times the tides will become diurnal around the time of the moon's maximum declination. The currents set northwest on the flood and southeast on the ebb; attaining rates of about a knot and turning at about the times of high and low water. In February-March 1994, the USS BEAUFORT reported the Range of tide to be 2 feet.

Pilotage

(163) Vessels must obtain permission and acquire a pilot from the authorities at Saipan before entering the harbor. Entering and exiting port is permitted only during daylight hours and "Tinian Port Control" monitors VHF-FM channel 16.

Wharves

(164) Main Quay; length 2,000 feet; 22 to 32 feet (6.7 to 9.8 meters) alongside. Pier 1 and Pier 2, off the NW side of Main Quay, were reported in ruins and unserviceable in 2005.

Charts 81067, 81071, 81076

(165) **Saipan Island** (15°10'N., 145°45'E.), the second largest of the Mariana Islands, is northeast of Tinian Island and is separated from it by **Saipan Channel**. Saipan Channel is deep and clear of known dangers.

Prominent features

(166) A chain of mountains, the summit of which is **Ogso' Takpochao**, 1,555 feet (474 meters) high, a conspicuous, conical, extinct volcano, lines the center of the island in a north-south direction. The east peninsula and the south part of the island are low flat plateaus. Some relatively level areas are found on the north end and northwest and west sides of the island, between the coast and the lower slopes of the ridge. These areas are, for the most part, cultivated. The land on the west and northwest sides slopes down to the beaches. The northeast and southeast shores of the island are formed by rugged, rocky cliffs.

(167) The west and northwest shores are fronted by barrier reefs, within which are shallow lagoons. Detached



dangers and foul ground containing many coral heads, with depths of 3 fathoms (5.5 meters) or less, extend about a mile southwest from the southwest extremity of the barrier reef that fronts the northwesterly end of the island. A number of detached dangers lie south of this foul ground, along the edges of the swept anchorages areas.

- (168) Vessels approaching the island will first sight Ogso' Takpochao. Vessels passing S of the island will next sight **Fina' Sisu**, the 295-foot (90-meter) summit, located 2¾ miles south-southwest of the above peak. This summit, when first seen, appears as a detached island. **Isleta Managaha (Maniagassa Island)**, located off the northwest coast, appears as a destroyer when viewed from the west.

- (169) An abandoned lighthouse, 43 feet (13.1 meters) high, white circular concrete structure, stands at an elevation of 375 feet (114 meters), about a mile northeastward of the pier at Garapan. Two radio masts, marked by obstruction lights, are close to the abandoned lighthouse. Five radio towers are on **Puntan Agingan** and are reported to serve as one of the most visible landmarks on Saipan.

- (170) Saipan Harbor is reported to be radar conspicuous at a distance of about 20 miles.

- (171) **Saipan Harbor** (15°12'N., 145°41'E.), lying on the west side of Saipan Island, includes the outer anchorage, **Garapan Anchorage** and the inner harbor, **Puetton Tanapag**.

Routes

- (172) Vessels entering Puetton Tanapag should make the approach with the light on Managaha ahead bearing **044°**, passing on either side of the fairway buoy. When approaching Lighted Buoy No. 3, course should be altered to **088°** with the harbor entrance lighted range lined up. This course leads into and through the harbor.

Channels

- (173) The northern part of Saipan Harbor, **Puetton Tanapag**, is entered through a dredged channel. In August 2003, the channel had a controlling depth of 32 feet to the basin, thence depths of 36 to 40 feet were available in the basin.

Anchorage

- (174) The outer anchorage affords shelter during prevailing easterly winds, but none during infrequent westerly storms. This anchorage, which lies from 3 to 5 miles offshore, is suitable only as a temporary anchorage

for large vessels. The inner anchorage, which includes Garapan Anchorage, contains numerous berths with depths ranging from 25 to 100 feet (7.6 to 30.5 meters), holding ground fair to good, with coarse coral sand. This anchorage lies from 1 to 2 miles offshore. Vessels can anchor in 10 fathoms (18.3 meters), sand bottom, about 0.8 mile offshore, abreast **Fina' Sisui**, off the village of **Chalan Kanoa**. Vessels can anchor in 12 to 14 fathoms (22 to 26 meters), coral bottom, in a position about 1.5 miles off **Garapan**. The anchorage area in Puetton Tanapag has depths ranging from 12 to 30 feet (3.6 to 9.1 meters). A seaplane landing area is northward of the anchorage area.

Regulated navigation area

- (175) A security zone has been established in Saipan Harbor. (See **33 CFR 165.1405**, chapter 2, for limits and regulations.)

Caution

- (176) A sewer outfall extends from a position about 200 yards southwest of the southwest corner of Pier C to a position about 600 yards north-northwest of the northwest corner of the same pier.
- (177) Unexploded ordnance has been reported to lie within Anchorage Berth L8.
- (178) **Okino Reef** (15°12'41"N., 145°41'48"E.), an isolated shallow area in Garapan Anchorage, has a least depth of 6 feet and is marked by a buoy on the W side.
- (179) Some mooring buoys and many wrecks are in the harbor.
- (180) Two mooring buoys are just outside the reef off **Puntan Susupi**.

Tidal Currents

- (181) Tidal currents in Saipan Channel set northwesterly at a rate of 2½ knots on the flood and southeasterly at 1¼ knots on the ebb; turning at about the times of high and low water. In the outer anchorage of Saipan Harbor, the tidal currents are irregular, with a maximum west-northwest set of about 2 knots during the flood. In Garapan Anchorage, the tidal currents set northerly at rates of ½ to 1 knot during the flood and southwestwardly at rates of ½ to ¾ knot during the ebb. In Puetton Tanapag the tidal currents set north on the flood and south on the ebb, neither exceeding a rate of ¾ knot. They appear to turn at times of high and low water.

Pilotage

- (182) Pilotage is compulsory; pilots board vessels in the vicinity of Tanapag Harbor Approach Lighted Buoy T.

Wharves

- (183) The port provides 2,600 linear feet of berthing space, and a 22-acre container yard. Water, fuel, electricity, and sewage pump-out are available. A marina is about 0.5 mile SW of the port facilities.

- (184) **Bahia Laolao** (Bahia Laulau) is on the southeast side of Saipan Island affording the only shelter with the wind between west and north, but due to excessive depths it can not be recommended. Vessels may obtain anchorage in a depth of about 30 fathoms, about 600 yards offshore, south of the village of Laulau.

Off-lying banks and dangers

- (185) A bank, with a depth of 26 fathoms (48 meters) is about 9½ miles north-northeast of **Puntan Sabaneta** (15°17'N., 145°49'E.).

Charts 81004, 81086, 81092

- (186) **Arakane Reef** (15°38'N., 145°45'E.), about 175 miles west of Saipan Island, is a coral reef with a least depth of 30 feet (9.1 meters) over it. In 1945, a heavy swell was observed over Arakane Reef; discoloration was very noticeable. In 1969, mooring buoys were reported to be upon this reef.

- (187) **Farallon de Medinilla** (16°01'N., 146°05'E.) 265 feet (81 meters) high, and guano-covered, has steep coasts forming precipices. Deep caves are found on the south and west shores. A chasm, located in the southern part of the island, separates that part from the north. Farallon de Medinilla was reported to be radar conspicuous from a distance of 23 miles.

- (188) A rocky bank, with a least depth of 8.7 fathoms (16 meters), is about 0.3 mile northeast of the north end of the island. Another bank with least depth of 3.9 fathoms (7.1 meters) is about 1.3 miles north of the island; the bank is marked by breakers in heavy weather. In 1964, a depth of 10 fathoms (18.3 meters) was reported about 9 miles west-northwest of the north end of Farallon de Medinilla.

Caution

- (189) Farallon de Medinilla is used as a bombing and strafing target complex by the U.S. Navy. Mariners are advised to avoid the area by as wide a margin as is practicable.

- (190) **Anatahan Island** (16°22'N., 145°40'E), 2,585 (788 meters) high, is about 20 miles northwest of Farallon de Medinilla, and is of volcanic formation. The crater of a dormant volcano, which contains a wide grass-covered field, forms the summit of the island. The crater

wall has a peak on its east and west sides; the west one being quite sharp.

- (191) Small vessels can anchor off the northern part of the west coast of Anatahan Island, about 600 yards offshore. A bank, with a depth of 37 fathoms (67 meters) over it, is about 18 miles east of Anatahan Island. In 1974, another bank with a depth of 35 fathom (64 meters) was reported to lie about 10 miles farther north-northeast of the island.
- (192) In 1967, a depth of 12 fathoms (22 meters) was reported in 17°08'N., 143°15'E. An 8 fathom (14.6 meters) patch has been reported to be in 16°31'N., 143°08'E.
- (193) **Sarigan Island** (16°43'N., 145°47'E.), lying about 20 miles northeast of Anatahan Island, is cone-shaped, wooded, and of volcanic origin; rising to a height of 1,801 feet (549 meters) in its southern part.
- (194) A bank, with a depth of 12 fathoms (21.9 meters) is 5 miles north of Sarigan Island.
- (195) **Zealandia Bank**, about 11 miles north-northeast of Sarigan Island, is comprised of two rocks that dry, lying ½ mile apart. The sea breaks on these rocks at all times and the breakers can be seen from a distance. It was reported that there was a depth of 11 fathoms (20.1 meters) around both rocks, and that there are no other dangers. A bank, with a depth of 51 fathoms (93 meters) over it, is 9 miles northwest of Zealandia Bank.
- (196) **Guguan Island** (17°19'N., 145°51'E.), lying about 35 miles north of Sarigan Island, has two summits; the southern is 988 feet (300 meters), the north is 814 feet (248 meters) high, and is an active volcano. Guguan Island is reported to be a good radar target from a distance of 27 miles. A large quantity of sulphur covers the ground around the crater. When seen from east or west, the northern summit appears to be covered with snow. The coasts are steep, and there is vegetation and breadfruit trees.
- (197) **Alamagan Island** (17°36'N., 145°50'E.), lying 15 miles north of Guguan Island, is an inactive volcano with two peaks; the higher being 2,441 feet (744 meters). The island is reported to be radar conspicuous at a distance of 31 miles. The shores are lined with rocks and the southeast side is a steep slope of bare lava. There is a hot spring at the north end of the west coast.
- (198) Shoals with depths 35 and 26 fathoms (64 and 48 meters) were reported (1946 and 1970, respectively) to lie about 165 miles west of Alamagan Island. A bank, with a least depth of 60 feet (18.3 meters) over it, lies 27 miles north-northeast of the above 35 fathom (64 meters) shoal.

Anchorage

- (199) Anchorage may be found, during northeasterly winds, off the southwest side of Alamagan Island, about

600 yards offshore, in 12 fathoms (22 meters), sand bottom.

- (200) **Pagan Island** (18°07'N., 145°47'E.) lying about 30 miles north of Alamagan Island, has two active volcanoes. **Mount Pagan**, 1,870 feet (570 meters) high, rises in the northern and larger segment of the island. Several volcanic cones, some of which give off steam, are located in the southern part of the island. A hot spring lies on the eastern side of the southern part of the island. The two parts of the island are connected by a narrow, but high, isthmus. The island is rugged, except for a low level marshland lying south of Mount Pagan. Two lakes are located between the mountain and the north-west coast. The western lake, which is separated from the sea by a sand bar, 50 yards wide, is salty. The shores of the island are steep and rocky, except for some sandy beaches along Apaan Bay. Casuarina and coconut trees grow along most of the coastline and lower slopes, but the upper and steeper slopes of the volcanoes appear almost barren. **Apaan Bay** is an open bight off the middle of the west side of Pagan Island. The beach is for the most part steep, exposed to surf, and has a thick growth of shrubs. **Shomushon**, a settlement which contains most of the population of the island, is located at the head of a small inlet that indents the northern end of the bay.

Anchorage

- (201) Anchorage may be found in Apaan Bay in a depth of about 60 feet (18.3 meters), southwest of **Bandeera Rock**. Bandeera is a prominent rock, 161 feet (49 meters) high, lying 600 yards northwest of Shomushon. This anchorage is sheltered from winds between northeasterly and easterly, but during westerly winds heavy seas set in, making the anchorage dangerous.
- (202) A 24-foot (7.3 meters) shoal is about 800 yards south-southwest of Bandeera Rock. A shoal, with depths less than 36 feet (11 meters) over it, projects 400 yards south-southwest from the 24-foot (11-meter) shoal.
- (203) **Agrihan Island** (18°46'N., 145°40'E.), lying about 33 miles north of Pagan Island, has two peaks. The highest peak rises to 3,166 feet (965 meters). The island is of volcanic origin and has a large crater. The southwest side forms a gentle slope with a shore of black sand. **Agrihan**, a small settlement, is located near the southwest end of the island. A prominent church is about a mile northwest of the southern extremity of Agrihan Island. It was reported that the island was visible from a distance of 26 miles. Agrihan Island serves as a good radar target from a distance of 31 miles. A westerly current with a rate of 1¼ knots was observed in

August, in a position about 6 miles northwesterly of Agrihan Island.

Anchorage

- (204) Anchorage may be taken in 14 fathoms (26 meters), sand and gravel bottom, about 650 yards off the beach fronting the settlement of Agrihan; however, it is unsafe during strong southerly or westerly winds, when there is a heavy swell.

- (205) **Asuncion Island** (19°40'N., 145°24'E.), lying about 55 miles north of Agrihan Island, is a volcanic cone rising steeply to a height of 2,923 feet (891 meters). White smoke occasionally emits from this cone. On the northeast and east sides there are some prominent crevices and broken cliffs, from the cracks in which smoke emits. The slope is gentle at the southwestern foot of the mountain, and coconut palms grow sparsely amongst dense stunted trees. The south coast is fronted by a pebble beach; the remaining coasts are precipitous.

- (206) In 1955, breakers and discolored water were reported to extend about ½ mile offshore from the northeast end of the island.

- (207) Asuncion Island is reported to be radar conspicuous from a distance of up to 48 miles.

- (208) In 1969, it was reported that Asuncion Island lay 2 miles north of its charted position.

- (209) In 1953, a bank, with a depth of 27 fathoms (49 meters) over it was reported to lie about 5½ miles south-east, and another, with a depth of 58 fathoms (106 meters) over it lies 16 miles south, of Asuncion Island.

- (210) In 1945, depths of 52 and 60 fathoms (95 and 110 meters) were reported to lie about 85 miles west-southwest of Asuncion Island.

- (211) **Maug Islands** (20°01'N., 145°14'E.), lying about 24 miles north-northwest of Asuncion Island, are comprised of three rocky, uninhabited islands; named North, East and West. This group has the appearance of a conical volcanic peak that has partially collapsed. **North Island**, 748 feet (228 meters) high, is the highest but smallest. This island, together with **East Island**, and **West Island**, form a circle that encloses a lagoon. The steep sides of East Island are covered with grass and low bushes, and the higher slopes are covered with trees and coconut palms. A tower is on the summit of East Island. In 1958, the ruins of what appeared to be a fishing station were reported on the north end of the same island.

- (212) In 1965, it was reported that Maug Islands were incorrectly charted. In 1977, Maug Island was reported to be a fair radar target from distances up to 38 miles.

Local magnetic anomaly

- (213) A local magnetic anomaly amounting to 3°W has been observed near East Island, and up to 7° near West Island.

- (214) Tidal currents set easterly across the south entrance of the lagoon at a rate of ¾ knot during the flood. They set north through the entrance at a rate of ¼ knot during the ebb.

Depths-Limitations

- (215) South Passage, about 600 yards wide and swept to depths of 59 feet (18 meters) and 48 feet (14.6 meters), is the best passage leading into the lagoon. The north-east passage, which has been swept to 15 feet (4.6 meters) over a width of 150 yards, is not recommended, as it is fully exposed to the prevailing winds. The north-west passage is foul.

Anchorage

- (216) In 1941, it was reported that safe anchorage could be found, in depths of 20 to 40 fathoms (37 to 73 meters), about halfway between the west end of North Island and the southwest end of East Island; rock bottom.

- (217) Vessels can anchor off the northern part of the west side of East Island.

- (218) A vessel reported anchoring in 16 fathoms (29 meters), black sand bottom, with the northern point of East Island bearing 056°. However, this anchorage was reported unsafe due to swells rolling in through the northeast passage.

- (219) **Supply Reef**, with a depth of 27 feet (8.2 meters) over it, lies about 10 miles northwest of North Island. Supply Reef is reported to be a circular reef of about 300-yard diameter, marked by discolored water and by breaking seas.

Chart 81086

- (220) **Farallon de Pajaros** (20°32'N., 144°54'E.), lying about 36 miles north-northwest of Maug Islands, is the most northern of the Mariana Islands and it is an active volcano; its summit forming a regular cone of ashes 1,047 feet (319 meters) high.

- (221) In 1974, a shoal, with a depth of 10 feet (3 meters) over it, was reported to lie 115 miles northwest of Farallon de Pajaros. Submarine volcanic activity has been reported in this vicinity.

- (222) Farallon de Pajaros is reported to be visible from a distance of 40 miles; at night the crater glow can be seen for 15 miles. In 1967, it was reported that the volcano appeared as a well defined shadow at night from a distance of 27 miles. Farallon de Pajaros is radar

conspicuous from a distance of 29 miles. The northern, southern, and eastern coast are precipitous. All coasts are rocky and steep-to. There is no anchorage. The island is barren, except near the high rock on the southeast side, where there is some coarse grass.

- (223) A high rock is connected to the southeast side of the island. Several smaller rocks, one of which is prominent, are located about 150 yards southeast of the high

rock. A rock lies about 300 yards offshore of a position located about 600 yards southeast of the southwestern end of the island. There is a depth of less than 6 feet (1.8 meters) over this rock.

- (224) **Stingray Shoal**, having a depth of 8 fathoms (14.6 meters), is located in approximate position 20°30'N., 142°26'E. The shoal has not been examined, and should be given a wide berth.